

Date: Wednesday, 11/03/2009 9:53:23 AM
 User: Chantal Lavoie

Process Sheet

SPLIT-1

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: SADDLE BILLET (6061)
Job Number	: 46414 -1		
Estimate Number	: 12482		
P.O. Number	:	Part Number	: D6102013
This Issue	: 11/03/2009 S.O. No. :	Drawing Number	: D6102 REV D
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: / / Type : PURCHASED PARTS	Drawing Revision	: D
Previous Run	: 45033	Material	:
Written By	:	Due Date	: 18/09/2009 Qty: 200 Um: Each
Checked & Approved By	: <u>C209/03/11</u> <u>W</u>		
Comment	: Est Rev:A New Issue 06-07-03 JLM		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	PG	PURCHASING
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Comment: Issue P/O: 8393

- a) Description: Aluminum Billet
 - b) 7.000" x 6.500" x 2.000" thick
 - c) Tolerance on all dimensions is +0.06/0.00
 - d) Grain direction along 6.500" length
 - e) Material: 6061-T6/T6511 (QQ-A-250/11 or QQ-A-200/8)
- Material release certificate is required

C209/03/13

(200)

2.0	D6102013P	6061-T6 7.0x6.5x2.0
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 200.0000 Each(s)
 6061-T6 7.000"x6.500"x2.000"

3.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1
 Receive & Inspect For Transit Damage
 Ensure material certification is attached

50 88 09/04/02

4.0	QC6	DIMENSIONAL CHECK
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Comment: DIMENSIONAL CHECK
 Check certification to Dwg D6102 for compliance

SA 09/02/03 (50)

5.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1
 Identify and Stock
 Location: CNC

SA 09/04/03

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 11/03/2009 9:53:23 AM
User: Chantal Lavoie

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SADDLE BILLET (6061)

Job Number: 46414

Part Number: D6102013

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

09/04/03 *[Signature]*

Job Completion



C209/04/03

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

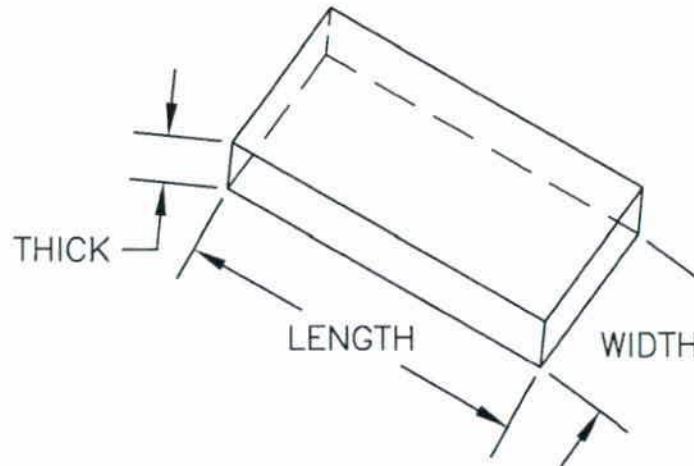
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART

DESIGN #	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED CP	APPROVED #	DRAWING NO. D6102	Rev. D SHEET 1 OF 1
DATE 06.06.30		TITLE SADDLE BILLET, 6061	SCALE NTS
A	01.03.30	NEW ISSUE	
B	03.10.20	ADD D6102-005/-007/-009	
C	04.08.25	ADD D6102-010/-011	
D	06.06.30	ADD D6102-013	

SPECIFICATION CONTROL DRAWING



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 46414

RELEASED

06.08.15 #

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.06/-0.00), AND GRAIN DIRECTION AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.06/-0.00.

ALL DIMENSIONS ARE IN INCHES.

Part No.	Alloy	Length	Width	Thick	Grain Direction
D6102-001	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	7.880	6.250	2.000	Along 7.880 Length
D6102-003	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	6.000	6.250	2.000	Along 6.000 Length
D6102-005	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	47.85	15.250	1.000	Along 47.85 Length
D6102-007	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	7.500	7.000	2.500	Along 7.500 Length
D6102-009	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	11.000	6.000	5.000	Along 11.000 Length
D6102-010	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	7.950	8.250	2.500	Along 7.950 Length
D6102-011	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	6.500	8.250	2.500	Along 6.500 Length
D6102-013	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	6.500	7.000	2.000	Along 6.500 Length

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**Castle Metals®**

A. M. Castle & Co.

BORDEREAU DE MARCHANDISES

Page 1 of 1

No de Formulaire d'Emballage / Pack Slip No:2341873

Expédié de / Ship From:		Vendu à / Sold To:		Expédié à / Ship To:		Livré à / Deliver To:	
Castle Metals MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date d'expédition / Date Shipped	F.O.B.	Modalités de transport / Freight Terms		Transporteur / Carrier	N° du Bon de connaissance / BOL No	N° de livraison / Delivery No	
01-APR-09	ORIGIN	Prepaid		MANITOULIN	4879-2	2341873	

Détails d'expédition / Shipment Details	Destination finale / Final Destination Branch - MON
--	--

N° de commande / Order No	N° de ligne Line No	N° d'article / Item No	Description			
181581	1	8641.MO	2.0000.PL.6061.T651.ALUMINUM.48.5000.144.5000 CUT 2SIDED TO 7 IN () X 6.5 IN ()			
N° de bon de commande / Purchase Order No		Nbre de pièces / Part Number	Qté commandée / Ordered Qty	Qté Facturée / Invoice Qty	Solde à livrer / Backorder Qty	
Error 8393			50 PCS	50 PCS		
Détails / Details						
Usine / Mill		No de coulée / Heat Number	Code méc / Mech Id	Pièces / PCS	Largeur (Pouce)/ Width (IN)	Longueur (Pouce)/ Length (IN)
		13767085		42		380.3
		13767085		6		54.33
		13767085		2		18.11

Ces marchandises/technologies sont sujettes aux règlements de l'Export Administration et du département d'État des États-Unis. Si elles ont été/sont exportées, elles doivent se conformer à ces règlements. Toute modification du contrat de transport contraire aux lois des États-Unis est interdite.

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

Nous certifions par la présente que le matériel couvert par cette certification est conforme aux spécifications susmentionnées et aux exigences applicables pour le matériel, y compris toute spécification faisant partie de la description. Les rapports d'essai sont archivés pour fins de consultation. Toute requête concernant du matériel défectueux sera rejetée à moins qu'elle ne soit faite par écrit à A. M. Castle & Co. dans les 60 jours suivant la livraison. Le matériel coupé sur mesure ou coupé par le client ne peut être retourné pour crédit.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Ce matériel a été reçu et inspecté par
This material has been received and inspected by:

Date:

TEST CERTIFICATE



Hulamin Limited Reg. No. 1940/013924/06 VAT Reg. No. 4080149604
HEAD OFFICE: Moses Mabilede Rd, Pietermaritzburg 3201, P.O. Box 74, Pietermaritzburg 3200, South Africa
Telephone: +27 33 395 6911 Telefax: +27 33 394 6335

BUYER: EMPIRE RESOURCES INC 10th FLOOR 1 PARKER PLAZA FORT LEE	Shipping File No : UR33742 Lot No : 18/02/128T5 P/List No : 2/635847 Release No :	Product : 2" X 48.5" X 144.5" PLATE 6061, T651 Dimension : 2" X 48.5" X 144.5" Alloy - Temper : 6061 - T651
	Cust Order No : 3715-P.R.127727 HULAMIN Order No : 001568E Item Part : 1/1	Certificate No : 0802LB2297 Cust Ref/Part No: Combined P/List No :

Case No :

MECHANICAL TEST RESULTS

Lot No.	Cast No.	Metal Id	Alloy	Spec No	Mechanical Properties						
					Yield Strength (Ksi)	UTS (Ksi)	Elongation A50 (%)	Earing (%)	Test Date	Gauge Length (Inches)	Bend Test
Spec				Min Max	35.1 Max	42.0	10				
18/02/128T5	SCWW	13767085	6061	1 2	39.3 39.2	48.3 48.0	12 12		14/02/08 14/02/08	02 02	

CHEMICAL COMPOSITION

	Cast No.	Alloy	Si (%)	Fe (%)	Cu (%)	Mn (%)	Mg (%)	Cr (%)	Zn (%)	Ti (%)	Each (%)	Total (%)
Min			0.40		0.15		0.8	0.04				
Max			0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	0.05	0.15
	SCWW	6061	0.63	0.40	0.27	0.06	1.04	0.19	0.00	0.02		

CONFORMS TO: AMS/QQ-A-250/11, ASTM B209-96, ASME SB-209 AND AMS 4027M

WE HEREBY CERTIFY, THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT. THE INSPECTION RESULTS INDICATED IN THE CHEMICAL COMPOSITION HAVE BEEN OBTAINED FROM CAST ANALYSIS.

Dr. A. Pitchford (HEAD OF CHEMICAL TESTING)

Ver 2.2.6

V. Maniram (HEAD OF PHYSICAL TESTING)

Printed Date : Monday 25 February 2008

Empire/Carmen Jansen

1 of 1

CASTLE METALS-LA

DATE REC'D 05/13/08
 REC'D FROM Empire
 APPROVED BY [Signature]
 IAC 8641

1-953 F013/036 F-400

562-630-5767

05-14-'08 03:24 FROM-LA-Paramount

SHIP TO:

A M CASTLE & CO
14001 ORANGE AVE
P.O. BOX 1402
PARAMOUNT, CA 90723

KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215

Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number

4121454

SOLD TO:

AM CASTLE & CO
3400 NO. WOLF ROAD
FRANKLIN PARK, IL 60131

CUSTOMER PO NUMBER: 02-29555		WORK PACKAGE:	CUSTOMER PART NUMBER: 8641 A96061-60		SHIP RUN/LOAD ID: 101220/22	GOV'T CONTRACT NUMBER:
KAISER ORDER NO: 1062767	LINE ITEM: 1	SHIP DATE: 14-FEB-2008	ALLOY: 6061	CLAD: BARE	TEMPER: T651	PRODUCT DESCRIPTION: PRECISION PLATE
WEIGHT SHIPPED: 11222 LB	QUANTITY: 8 PCS EST.	B/L NUMBER: 2016467	GAUGE: 2.0000 IN		WIDTH: 48.500 IN	LENGTH: 144.500 IN

Certified Specifications

AMS 4027/RevM
ASTM B 209/Rev06

AMS-QQ-A-250/11

ASME SB 209/Rev2004

Test Code: 1511

Test Results

Lot: 433614A5 Cast 650 Drop 11 Ingot 3

(ASTM E8/B557)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T651	LT / 2 (Min:Max)	47.9 : 47.9 (330 : 330)	42.8 : 43.1 (295 : 297)	14.1 : 14.8

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.78	0.5	0.29	0.04	1.1	0.18	0.19	0.02	0.01	0.00	TOT 0.06

Lot: 433624A4 Cast 650 Drop 10 Ingot 1

(ASTM E8/B557)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T651	LT / 2 (Min:Max)	46.9 : 47.9 (323 : 330)	42.5 : 43.4 (293 : 299)	13.1 : 13.9

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.75	0.5	0.29	0.06	1.1	0.21	0.11	0.03	0.01	0.00	TOT 0.06

KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4121454

Lot: 716600A2 Cast 650

Drop 07

Ingot 3

Parent Lot: 433536A0

(ASTM E8/B557)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T651	LT / 2 (Min:Max)	47.0 : 47.8 (324 : 330)	42.0 : 43.1 (290 : 297)	13.8 : 13.9

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.71	0.6	0.31	0.07	1.1	0.19	0.11	0.03	0.01	0.00	TOT 0.08

ALLOY LIMITS

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
6061 MIN	0.40	0.0	0.15	0.00	0.8	0.04	0.00	0.00	0.00	0.00	EACH	0.05
MAX	0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	0.05	0.05	TOT	0.15

Aluminum Remainder

CASTLE METALS-LA

DATE REC'D 02/20/08
REC'D FROM KAISER
APPROVED BY [Signature]
IAC 8641

CERTIFICATION

KAISER ALUMINUM FABRICATED PRODUCTS, LLC (KAISER) HEREBY CERTIFIES THAT METAL SHIPPED UNDER THIS ORDER WAS MELTED IN THE U.S.A OR CANADA AND MANUFACTURED IN THE U.S.A. AND HAS BEEN INSPECTED, TESTED, AND FOUND IN CONFORMANCE WITH THE REQUIREMENTS OF THE APPLICABLE SPECIFICATIONS AS INDICATED HEREIN. ALL METAL WHICH IS SOLUTION HEAT-TREATED COMPLES WITH AMS 2772. ANY WARRANTY IS LIMITED TO THAT SHOWN ON KAISER'S STANDARD GENERAL TERMS AND CONDITIONS OF SALE. TEST REPORTS ARE ON FILE. SUBJECT TO EXAMINATION. TEST REPORTS SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF ALUMINUM FABRICATED PRODUCTS, LLC LABORATORY. THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULANT STATEMENTS OR ENTRIES ON THE CERTIFICATE MAY BE PUNISHED AS A FELONY UNDER FEDERAL LAW. ISO 9001:2000 CERTIFIED

BILL POYNOR, LABORATORIES SUPERVISOR

Bill Poy

Page 2 of 2